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June 20, 1997

CC: 96-45

Mr. Mark Nadel
Universal Service Branch
Federal Communications Commission
2100 M Street
Washington, D.C. 20554

Re: Auction Proposal For Universal Service - GTE Comments

Dear Mr. Nadel,

Attached please find a copy of GTE's written comments submitted to the California Public Utilities Commission prior to its workshop on auction proposals for universal service. Please call me on 463-5293 if you have any questions.

Sincerely,

W. Scott Randolph
Director - Regulatory Matters

Attachment

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List A B C D E

Comments of GTE

Submitted to the California Public Utilities Commission

Auction Proposals for Universal Service

GTE California Incorporated (GTEC or GTE) hereby submits its proposal for an auction mechanism to be implemented as part of the Universal Service Plan adopted in 1996 by the California Public Utilities Commission (CPUC). In its Order adopting the universal service plan, the CPUC determined that "an auction mechanism appears to be the most efficient mechanism for reviewing the subsidy amounts in the future." The Order directed the Telecommunications Division staff to hold workshops to discuss with interested parties how the auction mechanism should be organized.[1] Accordingly, the CPUC has scheduled a workshop to be held May 8 through 9, 1997 for this purpose. Parties wishing to propose an auction mechanism to be considered at this workshop are asked to submit their proposals by April 19, 1997. GTE hereby responds to this request.

GTE has proposed, in its previous testimony in this proceeding, the use of a competitive bidding mechanism to select the carriers who would undertake universal service obligations and to determine the level of support each such carrier would receive. GTE suggested that the initial level of support in each area should be determined by a comparison of rates and estimated cost. As carriers are willing to enter markets and wish to obtain universal service support, GTE proposed that the plan should incorporate a notice mechanism which would allow an auction to be initiated in each area. The approach adopted by the CPUC, which established initial support levels based on cost, and which established a process to determine whether auctions

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[1] D.96-10-066, issued in the Universal Service Proceeding R.95-01-020/R.95-01-021, dated October 25, 1996 (Order). (See, pp. 215-216 and Ordering Paragraph 15(d).)

could be used to revise those initial support levels, is thus consistent with the framework GTE had proposed.

Since testimony was filed in this proceeding in the spring of 1996, GTE has continued to refine and develop its auction proposal. In this effort, GTE has worked with Professor Paul Milgrom of Stanford University, a well-known expert on the design of auctions. A revised version of GTE's auction proposal was described in a paper written by Professor Milgrom and submitted to the Joint Board on August 2, 1996. Since that time, GTE has had extensive discussions with the Federal Communications Commission (FCC) and Joint Board staffs, and with other interested parties. On March 19, 1997 GTE participated in a forum organized by the FCC staff, in which staff members and representatives of interested parties discussed various aspects of the design of auctions for universal service. The proposal presented here incorporates lessons learned in this process of development. Thus, while it follows the general framework described in GTE's earlier testimony, this proposal differs in certain areas, particularly with respect to the specifics of the auction design.

I.

ADVANTAGES OF AUCTIONS FOR DETERMINING UNIVERSAL SERVICE SUPPORT

By incorporating a competitive bidding process into its Universal Service Plan, the CPUC can realize several important advantages. Auctions provide a market-based mechanism for assigning carriers and determining support which is inherently more consistent with the pro-competitive intent of both California law and the Telecommunications Act of 1996 (the Act). Without auctions, the CPUC must rely

indefinitely on a form of cost-of-service regulation to set support levels.

The process of estimating the cost of basic local service is, by its nature, difficult and controversial. The Order documents the many aspects of cost modeling for which the CPUC has been obliged to make choices among widely differing contentions of the parties. It is reasonable to expect that the cost estimates produced by this process will be highly imperfect. Errors in the cost estimates may be systematic: they may be too low or too high across the board. They may also err on the relative costs assigned to different areas. Either form of error creates the risk that support may be insufficient to sustain universal service in a given area.

Further, as GTE has explained in its testimony, the sum of the price the customer pays and the support is the effective price the carrier faces in each area. Support that is either too high or too low will send incorrect price signals to firms making entry and investment decisions, and may significantly distort these decisions. Support that is too low will inhibit competitive entry, especially on a facilities basis; support that is too high may induce inefficient entry.

It is vital, therefore, that the CPUC have in place a corrective mechanism which can mitigate any errors in the initial cost estimates. The auction process provides such a mechanism, based on direct evidence of the support levels carriers are actually willing to accept as compensation for universal service obligations. Competitive bidding is a more effective means for eliciting firms' expectations regarding basic service costs than any cost model the CPUC could adopt.

In order to determine the support level for the current plan, the CPUC has been

obliged to make assumptions concerning revenues as well as costs. As the discussion in the Order makes clear, this is another area where the positions of the parties have differed widely, and where the CPUC has had to make difficult choices. The issue of what revenues should be counted--other than the basic local rate itself--is essentially one of complementarity. Does being the Carrier of Last Resort (COLR) increase the revenue that a carrier would expect to get from selling other services to subscribers? Any error in the assumptions used to calculate the initial support levels, like an error in the cost estimate, will cause the support to be either too high or too low. The auction mechanism would capture the amount of any complementarity, since each bidder would consider its expectation of such revenues in preparing its bid. Thus, competitive bidding would provide a mechanism which would allow for correction of the initial support levels, regardless of whether the error occurs on the cost or the revenue side of the calculation.

Of course, even if the initial support level is estimated perfectly in a given area, there will be a need to revise the support level over time to take account of changes in the cost of basic service, in the complementarity with other services, or in the obligations of the COLRs. The Order recognizes the need to reexamine support levels over time. (Order at 215.) As the Order notes, an auction mechanism would eliminate the need to revise the cost model to capture changes in technology or input prices. The Order also recognizes that bids would reflect changes in anticipated revenue over time. (Order at 216.)

The CPUC expects that it will review the definition of the supported service at

regular intervals; the Order notes that bidders will take account of any new elements that may be added to the service definition, without any need for the CPUC to develop new cost or revenue estimates.

Finally, the Order recognizes that competition among carriers through the bidding process will help to limit the level of support to the minimum amount necessary to achieve the CPUC's policy goals.[2]

II.

OBJECTIVES FOR THE DESIGN OF AN AUCTION MECHANISM

The auction framework proposed here has been designed, based on the advice of Professor Milgrom, to balance optimally a set of clearly stated policy objectives.

The first objective is to maximize the benefits of *ex post* competition among the COLRs selected in a given area. For this reason, the auction is designed to permit multiple carriers to "win." The benefits of this competition "in the market" are assumed to increase with the number of COLRs selected. However, there are diminishing returns to selecting additional carriers: the third carrier contributes fewer benefits than the second, the fourth fewer than the third, and so on.

The second objective is to minimize the cost of supply by choosing the most efficient firms to provide universal service. Some firms may operate more efficiently than others. Further, to the extent that there are significant economies of scale or

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[2] (Order at 215.) Thus, in general the bidding process can be expected to drive support levels down over time. However, the process should be designed to allow for support to be either increased or decreased as a result of an auction. This is necessary to allow bidding to correct the support level in areas where the initial level may be too low, and to accommodate changes in the service definition that may increase the cost of basic local service.

density in a given market, the cost of each firm will depend on how many firms share the role of universal service provider. It is assumed that costs will increase with the number of COLRs chosen. Competition among providers to be selected as COLRs can be thought of as competition "for the market."

The third objective is to minimize the amount of support needed to achieve the CPUC's policy goals. There will inevitably be deadweight losses involved in raising the money necessary to fund the plan; minimizing the size of the fund helps to minimize these losses.[3]

There clearly are tradeoffs among these policy objectives. The auction mechanism described here is designed to allow the CPUC to strike the most advantageous balance among these goals. By varying the parameters of the auction design, the CPUC can vary the relative weight assigned to each objective. Rather than choose the number of "winners" arbitrarily as part of the specification of the auction, the proposal is designed to allow the number of COLRs to be determined endogenously as an outcome of the bidding process.

Within this general framework, the auction is also designed with other important considerations in mind. Given the large number of Census Block Groups (CBGs) in

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[3] The CPUC has already established an end-user surcharge (AEUS) mechanism for raising the funds for the current plan. GTE believes that, for a given fund size, the AEUS is the mechanism which minimizes the resulting distortions. It is also important to remember that most universal service support has been provided in the past implicitly through the rates of other incumbent local exchange carrier (ILEC) services, such as access and toll. Arbitrarily reducing the size of the explicit universal service fund would not necessarily reduce the total amount of support (both explicit and implicit). By distorting the prices of other services, a given amount of implicit support will create deadweight losses at least as great as an explicit fund of the same amount.

California (about 20,000), the auctions should be reasonably simple and easy for the CPUC to administer, and for firms to participate in. For reasons discussed in the previous section, the auction mechanism should provide a means for correcting errors in the initial support levels--either up or down, as needed. The auctions should be designed to minimize the opportunities for collusion among the bidders.[4]

The plan should also be designed to adapt to changing conditions. Competitive entry will occur gradually over time, and some areas will have new providers willing to become COLRs long before other areas do. In order to have an auction, one must have bidders. The proposal described here allows auctions to be triggered in each area as competitors enter. Further, as the Order recognizes, the plan should allow auctions to adjust support over time to reflect changes in input prices or technology, or changes in the definition of basic local service.

The plan should be as competitively neutral as possible, while also ensuring that the support provided is sufficient, as required by the 1996 Act.[5] Both the Act and the rules adopted by the CPUC provide for a local exchange carrier (LEC) to withdraw from its universal service responsibilities. The Order anticipates that the auction mechanism developed through the workshop process will provide a means for accommodating such withdrawals, and for selecting a new COLR or COLRs to take the incumbent's place. (Order at 217.) Finally, the Order seeks to identify an auction mechanism that could be employed for areas which are currently unserved.

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4 This issue is raised by the Joint Board in its Recommended Decision (¶ 182).

5 Note that an auction approach is inherently better able to ensure sufficiency, since each party's bid establishes an amount that firm regards as sufficient.

III.

STRUCTURE OF THE UNIVERSAL SERVICE PLAN TO ACCOMMODATE AN AUCTION MECHANISM

In its previous testimony, and in its comments in the Joint Board proceeding, GTE has described several important elements that are necessary for the success of a market-based Universal Service Plan. Indeed, careful design of these elements is important for any Universal Service Plan to be effective, regardless of whether it incorporates an auction mechanism. However, because competitive bidding frames the problem in market terms, it throws these items into sharper relief. The elements that will be discussed here are the definition of the universal service obligation, the treatment of resale and unbundling obligations, and the relationship between the plan adopted by the CPUC for California and the Federal plan to be adopted by the FCC.

A. Definition Of The Universal Service Obligation

In order for any Universal Service Plan to be competitively neutral and sustainable, it is necessary for the plan to clearly specify the universal service obligation the carrier is undertaking. Compensation will be necessary to the extent that definition represents a market intervention, that is, to the extent that it requires carriers to do things they would not have chosen to do voluntarily.

A clearly defined obligation to serve is necessary because customers in each CBG are heterogeneous with respect both to cost and to other factors, such as the level of services they demand, that would affect their attractiveness to the carriers. If the regulator had perfect knowledge, and could call out exactly the correct amount of support for each customer--the precise amount that would just elicit supply from a

carrier--then no obligation to serve would be necessary, since every customer would be served voluntarily. Unfortunately, no commission has that perfect knowledge, and in any event it would not be practical to administer a plan on a customer-specific basis. Therefore, any real-world Universal Service Plan must offer an average amount of support within each area. The only way to ensure that every customer is served at an average support level--when customers are heterogeneous--is to link the average support payment to an obligation to serve any customer who requests service.

The CPUC has recognized the need for an obligation to serve by linking the receipt of funds from the CHCF-B to the assumption of a Carrier of Last Resort (COLR) obligation. GTE commends the CPUC for adopting this important feature of its plan. However, the current rules do not specify the obligation with sufficient clarity. In particular, they do not specify the price and terms at which the COLR would offer service. Without such specificity, the COLR obligation will have only limited meaning. Any carrier other than the ILEC would be able to serve selectively by offering only packages of service targeted to the customers the carrier wished to serve.[6] Alternatively, the carrier could simply price discriminate, quoting a high price to most customers, and a lower price to its "gold" customers. If such strategies can be pursued, then the plan would not be competitively neutral, because different carriers would be paid the same support, but would not provide the same function. Further, such a plan could never be sufficient over time, because carriers serving selectively would

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[6] If no carrier had an obligation to serve, then no customer whose customer-specific support amount was above the average would be served voluntarily.

undermine sufficiency by taking customers who are more attractive than the average. This is true, even if the CPUC were to estimate the average support level for all the customers in the area perfectly.

While the definition of the service obligation is a concern regardless of whether support is established using an auction, the context of an auction makes the need for specificity in this matter all the more clear. In order to ask suppliers to bid the compensation they would require to perform a desired task, the CPUC must be able to tell prospective bidders exactly what the task is. Further, those bidders who win the auction must be able to undertake an obligation to perform the task in exchange for the compensation, just as those carriers who lose the auction must be released from the obligation, even as they are not eligible for the compensation.

GTE proposes that the CPUC's rules defining the COLR obligation be modified to include a price ceiling. The COLR should be required to make available to all customers within the CBG a service which at least meets the basic service definition, at a price no higher than the ceiling. The COLR should be free to offer additional packages, or add-ons to the basic package, but it should not be able to require a customer to buy a bundled service whose price is higher than the ceiling in order to obtain the basic service. These proposals would preserve carriers' ability to offer new and attractive service packages to their customers, but would prevent them from using packaging or price discrimination to avoid their universal service responsibilities.

B. Treatment Of Resale And Unbundling Obligations

Just as carriers who win the auction must have an obligation to supply at a price

established by the CPUC, so must carriers who lose the auction be allowed to lose their accompanying service obligation. If an incumbent carrier loses the auction, but is still required to supply the new COLR at a controlled price, then other carriers could simply submit bids which reflected this controlled price, rather than their own costs. The auction will only reveal carriers' costs if each bidder faces a real prospect that it might actually have to supply at the support level it has bid. This, in turn, is only possible if there is a real possibility that the current incumbent could lose its service obligation as well as its support.

C. Relationship Between The California Plan And The Federal Plan

In its Universal Service Proceeding, the CPUC sought to design a plan which would be able to co-exist with any Federal plan the FCC might adopt under the mandate established by the Act. However, while it sought to anticipate the FCC's action as best it could, the CPUC chose to proceed with adoption of its own State plan. By doing so, the CPUC has taken a leadership role among state commissions on the issue of universal service.

The need for mutually reinforcing actions by state regulators and by the FCC becomes more clear when one considers the application of auctions to universal service. As discussed above, universal service is essentially a procurement problem: the regulator wishes a certain function to be performed in a certain way. It must select the suppliers it wishes to perform this function, and determine how much to pay them. While this is true regardless of whether the vendors are selected through an auction, the need to consider the procurement as a whole is highlighted by the idea of an

auction. It appears to make sense that the entire universal service obligation should be auctioned at once, and the total compensation for that obligation--whether it comes from the State plan, the Federal plan, or some combination--determined in a single bidding process.

For this reason, GTE urges the CPUC to consider working cooperatively with the FCC in the design of its universal service auction. GTE has had extensive discussion with the FCC staff on the subject of auctions, and the FCC has expressed considerable interest in the use of auctions for universal service. However, it appears likely, based on recent statements made by Chairman Hundt and others at the FCC, that the Order the FCC is scheduled to adopt by May 8 will implement only a relatively limited, interim Universal Service Plan. Further proceedings will be set to further develop aspects of a permanent Federal plan--such as the use of auctions.[7]

Because the CPUC is undertaking its effort to develop an auction mechanism at this time, and because the CPUC has already adopted, ahead of most other states, a Universal Service Plan which provides a suitable starting point for the application of auctions, there appears to be a opportunity for the CPUC to work cooperatively with the FCC in this matter, and to play a leadership role again in shaping the design of auctions for universal service.[8]

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[7] A cooperative effort with the FCC would also be helpful in addressing the issue of resale and unbundling obligations, since the Act gives the FCC the authority to forbear from application of any provision of the Act.

[8] While GTE believes that this combined approach is the most reasonable way to implement auctions, it is not strictly necessary to proceed in this way. The CPUC could conduct an auction to determine its own support level. Given the amount of Federal support available, prospective COLRs could be asked to bid

GTE envisions that auctions for universal service would be administered by the states, as an extension of their current roles as the certifiers of local service providers and regulators of local service. If the state-administered auctions met certain guidelines established by the FCC, then the results of the auctions would also be accepted by the FCC, and the Federal plan would provide a portion of the support determined through the auction process.[9]

IV.

ENVIRONMENT FOR THE AUCTIONS

In designing an effective auction mechanism, it is important to understand the relevant characteristics of the markets in question. For example, the design of the auction may be affected by the degree to which the carriers' costs would be affected by the particular combination of areas the carrier served. "Cost synergies," also called "cost complementarities," are the extent to which the cost of adding one small area to a carrier's service area would be affected by whether another small area is also added. When these effects are very strong, there can be advantages to an auction design which allows carriers to account for these complementarities in their bidding.

GTE has performed some empirical work, using one of the available proxy cost models, which suggests that the cost complementarities among CBGs in a wireline network are quite small. Therefore, in the interests of simplicity, the auction design

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the amount of additional support they would need from the CPUC in order to undertake the COLR obligation.

9 One simple payment rule that would accomplish this is for the state and Federal plans to pay the same proportionate shares of the support level determined in the auction that they previously paid of the initial support amount.

proposed here takes only limited account of the effects of synergies.[10]

Another aspect of auction design is the extent to which there are "common value" elements about which bidders might share a high degree of uncertainty. In such cases, the auction can be designed to allow bidders to learn from one another, as in a multiple round auction. However, there do not appear to be very large common value elements in the design of auctions for universal service.

A third characteristic of the market which would affect auction design is the presence of significant economies of scale or density. Where this effect is large, the compensation a carrier would demand would depend upon the number of other carriers with which the support must be shared. GTE's modeling suggests that the economies of density present in the market for basic local service are significant. Accordingly, GTE will present here an alternative auction design which takes greater account of economies of density, albeit at the cost of a moderate increase in complexity.

V.

STARTING POINT FOR THE AUCTIONS

A. Geographic Areas

The CPUC has already established CBGs as the geographic units for which COLR obligations will be assigned, and support levels calculated. GTE has designed its auction proposal using the same units.

One of the issues raised in the Order, and repeated in the Workshop Notice, is

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10 The analysis has been performed using the BCM II model. Preliminary analyses using a model of a wireless network suggests that the synergies encountered in such a network may be somewhat larger.

how CBGs should be aggregated for the purposes of bidding. GTE suggests that the CPUC should not attempt to designate aggregates of CBGs as part of the auction process. CBGs were chosen to allow the plan to assign different support levels to reflect cost differences and minimize opportunities for "cherry picking." These objectives remain valid. Further, the use of a larger area could create unnecessary barriers to entry. Any arbitrary aggregation scheme the CPUC might adopt could be inconsistent with the business plans of a potential entrant. Rather, the CPUC should allow the carriers themselves to designate the CBGs that will be auctioned, through the notice process that will be described below. A prospective COLR could choose the area it wished to serve, and then nominate for bidding the set of CBGs that most closely approximated that area.

The CPUC has already chosen to apply its newly adopted Universal Service Plan only to the areas currently served by the five largest ILECs in California. Areas served by smaller ILECs continue under the arrangements previously in effect. GTE anticipates that the CPUC would adopt a similar approach to the application of competitive bidding, using it first in the areas served by the larger companies.[11] If the bidding mechanism proves its worth, the CPUC can then consider whether it should be extended to areas served by smaller companies.[12]

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[11] The two companies who serve the vast majority of the CBGs currently affected by the CHCF-B, Pacific Bell and GTE, have already expressed their support for an auction mechanism.

[12] Of course, the 1996 Act has established separate policies with respect to areas designated as "rural." In order for

B. Initial Support Level

The initial level of support would be the level determined by the current CHCF-B fund, as established pursuant to the CPUC's Order. This level would continue until an auction was prompted in a given CBG through the Notice process. Once an auction had been held, the results of the auction would supersede the initial support level.

During recent discussions between GTE and the FCC staff, a proposal for rebalancing the initial support levels has been discussed. This proposal is intended to mitigate any possible errors in the relative levels of support across CBGs. However, the proposal is not intended to address any error in the overall level of support.

Each ILEC would be allowed to adjust the support it receives in each CBG, subject to constraints which would be analogous to those employed in a price cap plan. The total amount of support received by each carrier would have to be no greater than the amount received before the rebalancing. This would be analogous to the price cap

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there to be a carrier other than the ILEC qualified to bid in a rural area, the CPUC would have to make a public interest determinatio n that additional Eltels should be certified in that area.

constraint that the API not exceed the price cap index (PCI). Further, there would be a "banding constraint" which would limit the amount each CBG's support could be adjusted. This would be a one-time adjustment; once the support levels had been rebalanced, the carrier could not subsequently alter them, except through the bidding process. The bidding process itself would act as an additional constraint on the carrier's choices, because if it were to assign too much support to a given CBG, it would attract other firms to nominate that area for bidding. If the bidding process were to reduce that level of support, the carrier would not be able to recoup the loss in support from any other CBG.

VI.

THE NOMINATION PROCESS

If the CPUC were to adopt a bidding mechanism, there would not be parties willing and qualified to bid in every CBG in California. It is therefore not practical to set all CBGs for auction at once. Further, it would be unnecessarily burdensome for the CPUC to administer so many auctions at one time. Instead, GTE proposes a flexible plan in which areas (CBGs) are set for auction as firms enter and are willing to bid for them. This allows the process of competitive entry to govern the pace of the auction process. It also spreads out the auctions so that only a subset of the CBGs are actually up for bid at any given time; this makes it easier for the CPUC to administer, and for the carriers to participate.[13]

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[13] In its Order, the CPUC has decided that the CPUC staff itself will administer the Universal Service Plan. Accordingly, in the discussion here GTE will refer to the CPUC as the administrator of the auction mechanism. However, the CPUC may choose to engage a third party to act as the administrator. There are several

A. Qualification To Bid

In order to participate in a universal service auction, a carrier would have to be certified by the CPUC as a qualified bidder. In order to be qualified, the firm would have to:

(1) Be certified by the CPUC as an Eltel.

(2) Be willing to undertake the COLR obligation, described above, in the event that it wins the auction for a given CBG.

(3) Meet any other qualification requirements the CPUC may establish. The CPUC may decide that its current procedures for carrier certification are sufficient for this purpose. It should be noted, however, that the circumstances here are somewhat different from those for which the current CPUC practices were devised. A possible outcome of the auction is that the ILEC might lose, leaving one or more competitive local exchange carriers (CLCs) as the only carriers with a COLR obligation in a given CBG. The CPUC may wish to adopt some additional measures to provide a reasonable assurance of the carrier's ability to perform. Further, in order to ensure that only parties seriously interested in bidding participate in the process, the CPUC may wish to require deposits from parties who wish to be qualified as bidders.

B. The Nomination Process

GTE proposes that firms interested in prompting an auction in a given CBG

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third party firms with experience in administering auctions.

should nominate that area for bidding. Every six months there would be a preannounced two-week interval during which the CPUC would accept nominations from qualified carriers. Each qualified carrier would provide the CPUC with the list of CBGs for which it wished to submit bids, and for which it was interested in assuming the COLR obligation.

If an auction had been previously held in a given CBG, and if, as a result of that auction, at least one new firm had been selected to be a COLR there, then no new nominations would be accepted for that CBG for a period of three years.

Immediately after the close of the two-week nomination window, the CPUC would make public the list of the nominated CBGs, and the nominating firms for each CBG.

1. Nomination By An ILEC

Nominations could be submitted by any qualified carrier, whether that carrier is an ILEC or CLC. If an ILEC nominates an area for which an auction has not previously been held, it is in effect asking for relief from its obligation at the initial support level. This mechanism also provides a means for the ILEC to withdraw from an area.

If the nomination is submitted by an ILEC, and if no previous auction has been held in that CBG, then the ILEC must also submit a new support level.[14] An additional ten-day window will then be provided, starting on the day nominations are published by the CPUC. During that time, any other qualified firm may notify the CPUC of its willingness to serve as COLR in that CBG at the support level submitted by the ILEC. If

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[14] This proposed support level can be less than, equal to, or greater than the initial support level.

one or more qualified carriers submits such a notice, then that carrier (or carriers) will be designated as the COLR (or COLRs) in that CBG, and will receive the per-customer level of support suggested by the ILEC. In that event, the ILEC will not be designated as a COLR, will no longer have a COLR obligation in that CBG, and will no longer be eligible for support.

2. Registration Of Bidders

Once the list of nominated CBGs has been published, any qualified firm may register to bid on any of those CBGs.[15] A firm must register in order to bid. A window of sixty days from the release of the nominations will be provided for bidders to register. Note that if the ILEC fails to register at this stage, it has effectively withdrawn from the CBG.

If the CBG was nominated by the ILEC, and if no carrier offered to undertake the COLR obligation there at the support level submitted by the ILEC, then after the close of the ten-day window for such offers to be accepted, any qualified carrier may also register to bid on that CBG.

Within ten business days of the close of the registration period, the CPUC will post the list of CBGs for which bidders have registered, and the names of the qualified bidders. A CBG will proceed to auction only if there are at least two qualified bidders registered for that CBG.

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[15] This includes any firm that wishes to bid on that CBG. It includes the firm or firms that nominated the CBG, as well as any firm that did not nominate that CBG, but which decides to bid once it sees that the CBG has been nominated. If the ILEC wishes to bid, it too must register at this stage.

3. Nomination Of Areas Where Support Is Already Provided

Because the CPUC has already put in place a Universal Service Plan based on cost estimates, support will have been provided to carriers other than the ILEC in some CBGs prior to the adoption of a bidding proposal. However, as described, supra, the nature of the COLR obligation for which support will be provided will be more precisely defined once the auction proposal is implemented. Further, in areas where multiple carriers are already receiving support, there should be a sufficient number of carriers available to participate in an auction. Accordingly, GTE proposes that the CPUC itself should nominate all of these CBGs for bidding.

C. Reserve Support Levels

At the same time the list of areas nominated is released, the CPUC will also publish a list of reserve support levels for the CBGs nominated.

For any CBG which has been nominated by an ILEC, and where no previous auction has been held, the reserve support level will be determined by multiplying the support level submitted by the ILEC by a factor 1+X.

For any other CBG, the reserve support level will be determined by multiplying the current support level by 1+X.

D. Areas For Which There Are Fewer Than Two Registered Bidders

If there are at least two bidders registered for a CBG, then that area will proceed to the bidding process described below.

If the CBG was nominated by a carrier other than the ILEC, and if the ILEC is the only carrier registered for that CBG, then the ILEC must continue to serve the area at

the current support level. If a non-ILEC is the only carrier registered, then that carrier must assume the COLR obligation in that area at the reserve support level.

If the CBG was nominated by the ILEC, and if the ILEC is the only carrier registered, then the ILEC must continue to serve as the COLR there. However, the support will be set at the reserve support level calculated for that CBG. If a non-ILEC is the only carrier registered, then that carrier must assume the COLR obligation, at the reserve support level.

VII.

THE BIDDING PROCESS

A. Bidding

The auction will be a single-round, sealed bid mechanism. Once the list of registered bidders has been posted, bidders will have 60 days to submit their bids. The form of the bid will be the per-customer monthly support payment the carrier would require in order to undertake the COLR obligation defined by the CPUC in the given CBG.[16] Each bid is a binding offer by the carrier.

In its earlier testimony, GTE suggested the use of a simultaneous multiple round auction, similar in some ways to the auction design used in the FCC's spectrum auctions. After further consideration, and upon advice from Professor Milgrom, GTE has modified its proposal to use a single-round, sealed bid auction. There are two reasons for this change.

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[16] An alternative structure for the bidding, designed to address economies of density, will be discussed below.

First, the single-round auction is less vulnerable to collusion. Unlike the PCS auctions, the universal service auction is designed to allow for multiple winners. There is a danger that in a multiple-round format the bidders could have less incentive to bid aggressively. Because the multiple-round format always allows any bidder to match another party's bid, it is difficult for any one firm to gain by defecting from a collusive agreement, and relatively easy to punish a defector. In a single-round auction, each bidder knows that it can exclude other firms from receiving support by reducing its bid, and also that it can be excluded by others. If this occurs, there is no subsequent round in which to recover. Thus, each firm has an incentive to bid aggressively in order to gain access to support.

Second, the single-round auction is simpler to administer and takes less time. This helps to minimize the cost to the CPUC of administering the auctions, and to the carriers of participating. Compared to the PCS auctions, the number of areas to be auctioned is greater, and the value of the item bid on in each auction is lower.

B. Determination Of Winning Bidders

If at least two valid bids have been submitted in the auction for a given CBG, the number of bidders will be determined by the relative levels of their bids. In general, the closer together the bids are, the greater the number of bids that will be accepted. When bids are far apart, fewer bids will be accepted. The proposed decision rule is as follows:

(1) If at least one bid does not exceed the lowest bid by more than 15 percent of the sum of the lowest bid and the basic service price, then all bids

within that range will be accepted.

(2) If no competing bid is within the range described in (1), but one is within 25 percent, then the two lowest bids will be accepted.

(3) If no bid is within the range described in (2), then only the lowest bid is accepted.[17]

This acceptance rule approximates the outcome of an auction designed to maximize the objectives discussed above. It reflects the assumption that the incremental benefit to competition of adding an additional supported carrier will decline as more carriers are accepted for support. When the bids are close together, then the cost of having more COLRs, in terms of the added funding needed to support them, is relatively low; it thus makes sense to benefit from whatever additional *ex post* competition these added COLRs might create. When additional carriers would be much less efficient than the lowest bidder (as measured by their bids), so that the cost of supporting them would be very high, then the acceptance rule begins to exclude the least efficient carriers.[18]

Within the framework proposed here, the CPUC can choose a different set of tradeoffs between promoting *ex post* competition and minimizing cost and support

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[17] In the event that two bids are tied, then both will be accepted if a single bid at that level would have been accepted, and both bidders will receive the same support. For example, if there are two bidders tied within the 25% range, then those two bidders and the low bidder will all be accepted.

[18] If carrier A has a much higher bid than carrier B, then the difference in the two bids is an estimate of the increase in the industry's total cost that society will incur if it allows carrier A to take customers from carrier B by subsidizing carrier A.

levels. This can be done by changing the parameters of the acceptance rule. If the ranges within which bids are accepted are made wider, then more bids are likely to be accepted, but the support level will be higher, and some supply is likely to occur at higher cost.

C. Determination Of The Support Amount

In order to ensure that the plan is competitively neutral, all firms whose bids are accepted for a CBG should receive the same per-customer support amount. For CBGs where at least one bid is accepted, this support amount should be set at the level of the highest accepted bid. For CBGs where less than two valid bids were received, the auction is canceled, and COLR responsibilities and support amounts are determined using the same rules described in Section VI.D., above in the case where fewer than two bidders are registered.

The payment rule based on the highest accepted bid is chosen for several reasons. First, this is the only rule that ensures that support is sufficient, because it never sets the support for any COLR at a level lower than that COLR's own bid. Second, as long as it does not affect the set of winners, the choice of payment rule does not affect the expected yield of the auction (in this case, the expected level of support that must be funded). This is so because the payment rule, when announced in advance, will affect the way the firms bid.[19] Third, the proposed payment rule mimics the outcome of a competitive market, in which the price is set at the margin by the least

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[19] If, for example, the support level were to be set at the level of the lowest bid, then the firms would, in general, submit higher bids. Experiments conducted by the Treasury with T-Bill auctions confirm that the yield is not affected by varying the payment rule.

efficient capacity that still produces anything, while more efficient units of capacity generate surplus.

D. Bid Withdrawals

The proposed auction design allows bidders to withdraw their bids within certain limits. The purpose of the withdrawal feature is to provide a limited mechanism for dealing with synergies among different CBGs. Suppose a bidder submits bids on two CBGs, basing its bid on the ability to provide supported service in both areas. If the firm wins only one of the CBGs, it may not wish to accept the COLR obligation in the other CBG. The ability to withdraw also provides a partial mechanism for dealing with economies of density. If a carrier finds that it has won a CBG, but is sharing the COLR obligation with other firms whose presence it had not anticipated when forming its bid, it may find it advantageous to withdraw.

GTE proposes that the CPUC should allow carriers to withdraw in sequence, starting with the lowest bidder. The CPUC will allow the lowest bidder in each CBG to withdraw within ten days of the date the winners are announced. These withdrawals will then be posted, and the second lowest bidder in each CBG will then be given another ten days to withdraw. The CPUC would continue in this fashion until all winning bidders have been given an opportunity to withdraw. After each withdrawal, the results of the auction will be determined as if the withdrawn bid had never been submitted. However, a bid that was initially declared a losing bid cannot be declared a winning bid as a result of a withdrawal.

VIII.

POST-AUCTION IMPLEMENTATION

A. Assumption Of Universal Service Obligations

When an auction does not result in a change in the carriers obligated to provide service in a CBG, the new support level will take effect within ten days of the close of the auction. If the auction does result in a newly designated COLR for the CBG, then a transition period of 90 days will be provided for the new carrier to take up its service obligation. If the ILEC has not been designated as a winner, then a transition period of one year will be provided for the new carrier.

B. Term Of The COLR Designation

If an auction does not result in a change in the identity of the carriers with COLR obligations in a CBG, then the area should be open to be nominated again in any subsequent bidding cycle. This rule makes it impossible for an ILEC to deter entry by "locking in" exclusive support in an early auction. If, for example, an ILEC is the sole winner of the first auction in an area, the same area could be nominated by an entrant six months later.

However, if an auction results in the designation of a new COLR, then GTE proposes that the CPUC enter into a "contract" with the winners for a specified period of time. GTE suggests that this period should be three years. During that time, the CPUC would not accept nominations for that area. The purpose of this feature is the same as the reason many private firms voluntarily enter into contracts. It provides the CPUC with an assurance that the firm will undertake to perform the specified functions for a guaranteed amount of time. Similarly, it provides the firm with some assurance that it

can recover at least a portion of the investment it must make in order to perform as a universal service provider in the area. This assurance will also provide a more reasonable basis for the firm to estimate the amount it can bid.

At the end of the three-year period, the CBG would again become subject to nomination by any qualified bidder. Thus, if the existing COLRs are satisfied with the support level, they may continue for some time under the existing arrangement, until either they or another firm chooses to renominate the area.

C. Rebidding

Once an area has been nominated again, the auction procedure would be that described above for an area nominated by a non-ILEC. This procedure would be followed regardless of whether the carrier nominating the area was an ILEC.

D. Changes To The COLR Obligation

The CPUC will from time to time update the requirements of the COLR, including periodic review of the basic service definition. When such changes are made, they will not be imposed immediately on existing COLRs, since this would amount to changing the specification of the service to be provided after the price had been agreed upon. Instead, each new auction will be based upon the definition of the COLR obligation then in effect. Over time, as CBGs are rebid, the auctions will incorporate any changes adopted by the CPUC.

E. Transfer Of The COLR Obligation

GTE proposes that any winner of an auction should be able to sell or otherwise transfer its obligation to any qualified carrier at any time. The only exception would be

that the obligation could not be transferred to a carrier that is already a COLR in the same CBG. In other words, the number of COLRs in a CBG could not be reduced as the result of the transfer. Further, if the COLR selling its obligation is within a three-year contract period, the term of the contract will not be extended as a result of the transfer.

This provision would allow the development of a secondary market in COLR obligations. It would allow carriers who can serve more efficiently or who value the COLR designation more to acquire the obligation from those who are less efficient or who value the designation less. The ability to transfer obligations also provides another limited mechanism for addressing possible synergies across areas. If, through some miscalculation, a firm fails to win a CBG which it believes to be particularly important to its business strategy, it has the option of paying to obtain the COLR designation from another carrier for whom it may be less important.

F. Default Penalties

The Commission retains its ability to regulate the provision of local service by the COLR. This authority provides the CPUC with a range of tools for penalizing any COLR which defaults on its service obligation.

IX.

AN ALTERNATIVE BIDDING PROCEDURE TO TAKE GREATER ACCOUNT OF ECONOMIES OF DENSITY

If the CPUC finds that economies of density are sufficiently large to warrant an auction mechanism designed to take account of them, GTE proposes the following as an alternative bidding procedure.

The auction would be a single-round, sealed-bid process, as described previously. However, each bidder would submit a two-part bid. The first element of the bid would be the support amount the carrier would accept if it were the only COLR in a given CBG. The second element of the bid would be the support amount the carrier would accept if it were one of several COLRs. The second element would be required to be higher than the first. The low bidder would be determined on the basis of the first element. In order to determine whether the other bidders were accepted, their second bids would be compared to the lowest bidder's first bid, and would be accepted if they were within the specified ranges relative to that bid, as previously described. Carriers would then be allowed the option to withdraw, in the sequential fashion described above. Under this procedure, the lowest bidder would receive the same support as the other accepted bidders, which would be determined by the highest of the second bids that were accepted. The lowest bidder would thus be compensated based on the last accepted bidder's estimate of the magnitude of the economies of density. If the lowest bidder does not choose to share the COLR obligation at that support level, it can exercise its option to withdraw.